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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,875	01/24/2006	David Small		7336

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EXAMINER	
LY, HIEN QUANG	
ART UNIT	**PAPER NUMBER**
3662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,875	SMALL, DAVID	
	Examiner	Art Unit	
	Hien Ly	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-18* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election-Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims **1-6 and 11**, drawn to a method for determining attitude (comprising a step of analyzing the relative movement of a receiver means to a radiating means by interpreting a cyclic Doppler a superimposed upon the received signal).

II. Claims **7, 10, and 15**, drawn to a method for determining attitude (comprising a step of differencing a first cyclic Doppler and a second cyclic Doppler to determine a Doppler difference).

III. Claim **8**, drawn to a method for determining attitude (comprising a step of differencing a first cyclic Doppler and a third cyclic Doppler to determine a Doppler difference).

IV. Claim **9**, drawn to a method for identifying and subsequently diminishing the effect of multipath-corrupted Doppler measurement (comprising a step of comparing the determined reference signal strength to ensuing instantaneous signal strength measurement t o identify received signals which are below a signal strength threshold).

V. Claim **12**, drawn to a method for determining attitude without using receiver carrier tracking loops (comprising a step of deriving Doppler measurements from the instantaneous phase of a received signal).

VI. Claim **14**, drawn to a device for creating a signal that manifests a 3D synthesized phase centre movement (comprising variable gain means being responsive to a control means).

VII. Claim **16**, drawn to a method for determining attitude in a user receiver configured with an INS(comprising a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference).

VII. Claim **17**, drawn to a method for determining attitude (comprising a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler).

IX. Claim **18**, drawn to a method for drawn to a method for identifying and subsequently diminishing the effect of multipath corruption (comprising a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals).

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I, II, III, IV, V, VI, VII, VIII, and IX are related as subcombinations disclosed as usable together in multiple combinations. The subcombinations are distinct

if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable.

In the instant case, **invention I** has separate utility such a step of analyzing the relative movement of a receiver means to a radiating means by interpreting a cyclic Doppler a superimposed upon the received signal, without a step of differencing a first cyclic Doppler and a second cyclic Doppler to determine a Doppler difference, or a step of differencing a first cyclic Doppler and a third cyclic Doppler to determine a Doppler difference, or a step of comparing the determined reference signal strength to ensuing instantaneous signal strength measurement to identify received signals which are below a signal strength threshold, or a step of deriving Doppler measurements from the instantaneous phase of a received signal, or variable gain means being responsive to a control means , or a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference , or a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler , or a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention II has separate utility such a step of differencing a first cyclic Doppler and a second cyclic Doppler to determine a Doppler difference, without a step of differencing a first cyclic Doppler and a third cyclic Doppler to determine a Doppler difference, or a step of comparing the determined reference signal strength to ensuing instantaneous signal strength measurement to identify received signals which are below

a signal strength threshold, or a step of deriving Doppler measurements from the instantaneous phase of a received signal, or variable gain means being responsive to a control means , or a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference , or a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler , or a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention III has separate utility such a step of differencing a first cyclic Doppler and a third cyclic Doppler to determine a Doppler difference, without a step of comparing the determined reference signal strength to ensuing instantaneous signal strength measurement to identify received signals which are below a signal strength threshold, or a step of deriving Doppler measurements from the instantaneous phase of a received signal, or variable gain means being responsive to a control means , or a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference , or a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler , or a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention IV has separate utility such a step of comparing the determined reference signal strength to ensuing instantaneous signal strength measurement to

identify received signals which are below a signal strength threshold, without a step of deriving Doppler measurements from the instantaneous phase of a received signal, or variable gain means being responsive to a control means , or a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference , or a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler , or a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention V has separate utility such a step of deriving Doppler measurements from the instantaneous phase of a received signal, without variable gain means being responsive to a control means , or a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference , or a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler , or a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention VI has separate utility such variable gain means being responsive to a control means, without a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference , or a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler , or a step of

processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention VII has separate utility such a step of differencing a cyclic Doppler a superimposed upon the received signal and a user receiver movement Doppler from an INS to determine a Doppler difference, without a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler, or a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

Invention VIII has separate utility such a step of filtering a received signal to remove low-frequency user-movement Doppler and hence establish a residual cyclic Doppler, without a step of processing measurement to determine a low signal strength level which indicates multipath corrupted signals, and vise versa.

In other words, each one of the inventions recited in Groups I, II, III, IV, V, VI, VII, VIII and IX is separately usable in a system not having the other. See MPEP § 806.05(d).

3. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention**.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Ly whose telephone number is 571-270-1326. The examiner can normally be reached on M-F: 7:00am - 4:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THOMAS H. TARCZA can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent Examiner

Hien Ly

December 27, 2007

THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600